MICHAEL W. HART
ENGINEERING GEOLOGIST
P.O. BOX 261227 • SAN DIEGO • CALIFORNIA • 92196 • 858 578-4672

File No. 776-2008
October 9, 2008

Mr. William K. Howland
B&B Properties 2000, L.P.
9307 Carlton Hills Blvd., Ste. D
Santee, California
92071

Subject: Golden Ridge Road Parcels
San Diego County, California
GEOLOGIC RECONNAISSANCE

Dear Mr. Howland:

In accordance with your request I have completed a geologic reconnaissance of the subject property. The results of this study indicate that the building location is locally underlain by shallow fill, topsoils, and dense granitic bedrock. Review of geologic literature and aerial photographs indicates the site is not located on an active or potentially active fault nor is it located on an ancient landslide. If you have any questions after reviewing the report, please contact me at your convenience.

Very truly yours,

Michael W. Hart
CEG 706

5 cc addressee

GEOLOGIC RECONNAISSANCE
4301 VALLEJO AVENUE
San Diego, California

Purpose and Scope

This report presents the findings of a geologic reconnaissance of the residential property located at 8697 Golden Ridge Road in the Lakeside area of San Diego County, California (Figure 1). It is understood that the property is to be divided into two residential lots. Accordingly, the purpose of this study is to: 1) describe the site's geologic characteristics and potential geologic hazards, and, 2) recommend mitigation measures if required.

The scope of this study included geologic mapping, a study of stereo-pairs of aerial photographs (U.S.D.A, 1953) and a review of readily available geologic literature including landslide inventory and slope hazard maps published by the California Geologic Survey (Tan, 1995).

Site and Project Description

The site consists of an irregularly shaped residential parcel located on the east side of Golden Ridge Road west of Wintergardens Road in San Diego County, California (Figure 1, Site Location and Regional Geologic Map). The property slopes gently to the east from a high elevation of approximately 760 feet along Golden Ridge Road to a low elevation of 695 feet in the bottom of the natural drainage at the northeast corner of the property.

The lot is bordered on the north and south by similar residential properties and on the east by a natural drainage. It is understood that the property is to be split into two parcels; a northerly parcel containing an existing residence that is to remain and a southerly undeveloped parcel containing numerous trees and low agricultural terraces. The southerly parcel will be developed to receive a residential structure with access from Golden Ridge Road. No development plans

are currently available, however, it is anticipated that only minor fills and cuts (likely less than 5 feet in height) will be required to develop the property.

General Geology and Geologic Setting

The site lies at the western edge of the Peninsular Ranges Batholith of southern and Baja California. This northwesterly trending series of mountain blocks extends from the tip of Baja California on the south to the vicinity of the Transverse Ranges in San Bernardino County to the north. The predominant rock types making up the batholith in San Diego County consist of gabbro, tonalite, and granodiorite with prebatholithic rocks locally dominant. The San Jacinto, Elsinore, and related minor faults located to the east of the site lie approximately parallel to the mountain blocks occupying eastern San Diego County. These faults are discussed in more detail later in this report.

Geology and Geologic Structure

Reference to published geologic maps of the El Cajon 7.5 Minute Quadrangle (Tan, 2002) indicates that the site is underlain at depth by tonalite, a light gray, coarsely crystalline granitic rock composed of predominantly of plagioclase feldspar, with minor quartz and hornblende. These rocks are highly weathered and do not crop out on site but are covered with thin surficial deposits consisting of colluvium in the valley bottom east of the proposed residence site, fill associated with landscaping and agricultural activities, and thick topsoil. Analysis of aerial photographs (U.S.D.A., 1953) indicated no evidence of tonal or vegetal lineaments suggestive of the presence of fracturing or faulting.

Geologic Hazards

Geologic hazards considered for this report consist of landsliding and rockfall potential, ground rupture due to faulting, seismic shaking, and secondary effects of faulting such as liquefaction and seismically induced settlement.

Landsliding and Rockfall Potential: A study of aerial photographs (U.S.D.A, 1953) and Landslide Hazard maps published by the California Division of Mines and Geology (Tan, 1995) indicates the site is not located within or adjacent to a known or suspected ancient landside. The landslide hazard maps (Tan, 1995) indicate the site lies within Subarea 3-1 defined as generally susceptible to landsliding. The area includes gentle to moderate slopes

where slope angles are generally less than 15 degrees. Because the site is developed on gentle slopes and is underlain by high-strength granitic rocks, it is concluded the potential for deep seated landsliding is very low. Similarly, because of the low slope gradients and the fact that there are no large rock outcrops on or adjacent to the property, the rockfall potential is essentially nil.

Local Faulting: A review of the Geologic Map of the El Cajon Quadrangle (Tan, 2002) indicates that the site is not located on an active or potentially active fault. The closest active fault to the property is the Rose Canyon fault which lies approximately 12 miles to the west. This fault extends northward from San Diego Bay through La Jolla and then offshore to the vicinity of Oceanside. A study of the referenced aerial photographs indicates the site is not traversed by topographic or vegetation lineaments that might suggest the presence of previously unknown or unmapped active or potentially active faults.

Secondary Effects of Faulting: Secondary effects of faulting include liquefaction and seismically induced settlement. Since the proposed building site is underlain by dense granitic soils, it is concluded that the potential for liquefaction or seismically induced settlement is very low.

Regional Faulting and Seismicity

In addition to seismic shaking generated by local faulting described above, the site will be affected by seismic activity as a result of earthquakes on major active faults located elsewhere in southern California. The nearest of these regional fault systems, the Coronado Bank Fault, lies approximately 25 miles to the west. Other active faults, the Elsinore, San Jacinto, and San Andreas Faults lie approximately 27, 48, and 61 miles, respectively, to the east. Major seismic events on any of the local or regional active faults could subject the site to moderate to severe seismic shaking.

The Rose Canyon fault has been active during the Holocene (last 11,000 years) and is the most significant fault to the site with respect to the potential for seismic activity. The site lies nearest to the Mission Bay segment that extends from San Diego Bay on the south to La Jolla on the north. The Del Mar segment of the fault extends from La Jolla to Oceanside. A detailed seismicity evaluation of the site is beyond the scope of this report, however, a summary of

relevant faults and a brief discussion of the potential for seismic shaking is included herein.

According to Lindvall and Rockwell (1995), the Mission Bay fault segment of the Rose Canyon fault is capable of generating a M_w6.4 earthquake with an estimated recurrence time of approximately 720 years. The fault system is capable of producing a M_w6.9 event if the Mission Bay and Del Mar segments both break simultaneously. The recurrence interval for such an event is estimated to be approximately 1800 years (Lindvall and Rockwell, 1995). Such an event could produce peak ground accelerations at the site on the order of 0.3g.

TABLE I: DETERMINISTIC SITE PARAMETERS for SELECTED FAULTS

FAULT	DISTANCE (mi.)	MAX. PROB. MAGNITUDE.	PEAK SITE ACC. (g)
Rose Canyon	12	6.9	0.3
Elsinore	27	6.75	0.12
San Jacinto	48	6.25	0.03
San Andreas	61	7.25	0.04
Coronado Bank	25	6.0	0.08

(attenuation relation: Joyner & Boore, 1982, mean)

Conclusions and Recommendations

1. The site is underlain by granitic rocks of the Peninsular Ranges Batholith that here consist of tonalite. Overlying the weathered rock are thick topsoils, limited areas of fill that makes up agricultural terraces, and colluvium in the valley bottom. Weathered granitic rocks typically provide good foundation support for residential structures. The presence of shallow fills that may underlie the low terraces on the gently sloping building site as well as any loose topsoil may necessitate either remedial grading or deepening the foundations to reduce the potential for differential settlement. It is recommended that a geotechnical engineer be consulted for foundation design and grading specifications.

2. It is concluded the site is not underlain by an ancient landslide. The site lies within Landslide Susceptibility Sub-area 3-1 defined as being generally susceptible to landsliding. Because the site is developed on relatively gentle slopes underlain by granitic rocks, it is concluded the

potential for landsliding is very low.

3. It is concluded on the basis of this study that the site is not located on or adjacent to an active or potentially active fault. The closest active faulting is associated with the Rose Canyon Fault Zone that lies approximately 12 miles to the west.

4. The site is subject to moderate to severe seismic shaking as a result of earthquakes on local or regional active faults. If the proposed residence is founded on bedrock or properly compacted fills it will not be subject to secondary effects of seismic shaking such as liquefaction, lateral spreading or seismically induced settlement.

Limitations

This report has been prepared exclusively for the use of the Client, and is not intended to be relied upon by any other entities or persons. The purpose and intent of this report is to address geologic conditions and the potential for the site to be impacted by geologic hazards. Foundation design, the detrimental effects of potential fill settlement, and grading recommendations are beyond the scope of a geologic reconnaissance. Such recommendations may only be made by a geotechnical engineer. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside the control of this consultant. Therefore, this report is subject to review and should not be relied upon after a period of three years.

References

Anderson, J. G., Rockwell, T., and Agnew, D.C., 1989, A study of the seismic hazard in San Diego, Earthquake Spectra, vol. 5(2), pp 229-333.

Joyner, W.B. and Boore, D.M. 1982, Prediction of earthquake response spectra, U.S. Geological Survey Open File Report 82-977, 16pp.

Kennedy, M.P., 1975, Geology of the San Diego Metropolitan area, California, California, Calif. Div. Mines and Geology, Bull. 200.

Lindvall, S.C., Rockwell, T.K., and Lindvall, C.E., 1990, The seismic hazard of San Diego revised: New evidence of Magnitude 6+ Holocene earthquakes on the Rose Canyon Fault Zone, in Proceedings of U.S. National Conference on Earthquake Engineering, Palm Springs, California, vol 1: Earthquake Engineering Research Inst., p. 679-688.

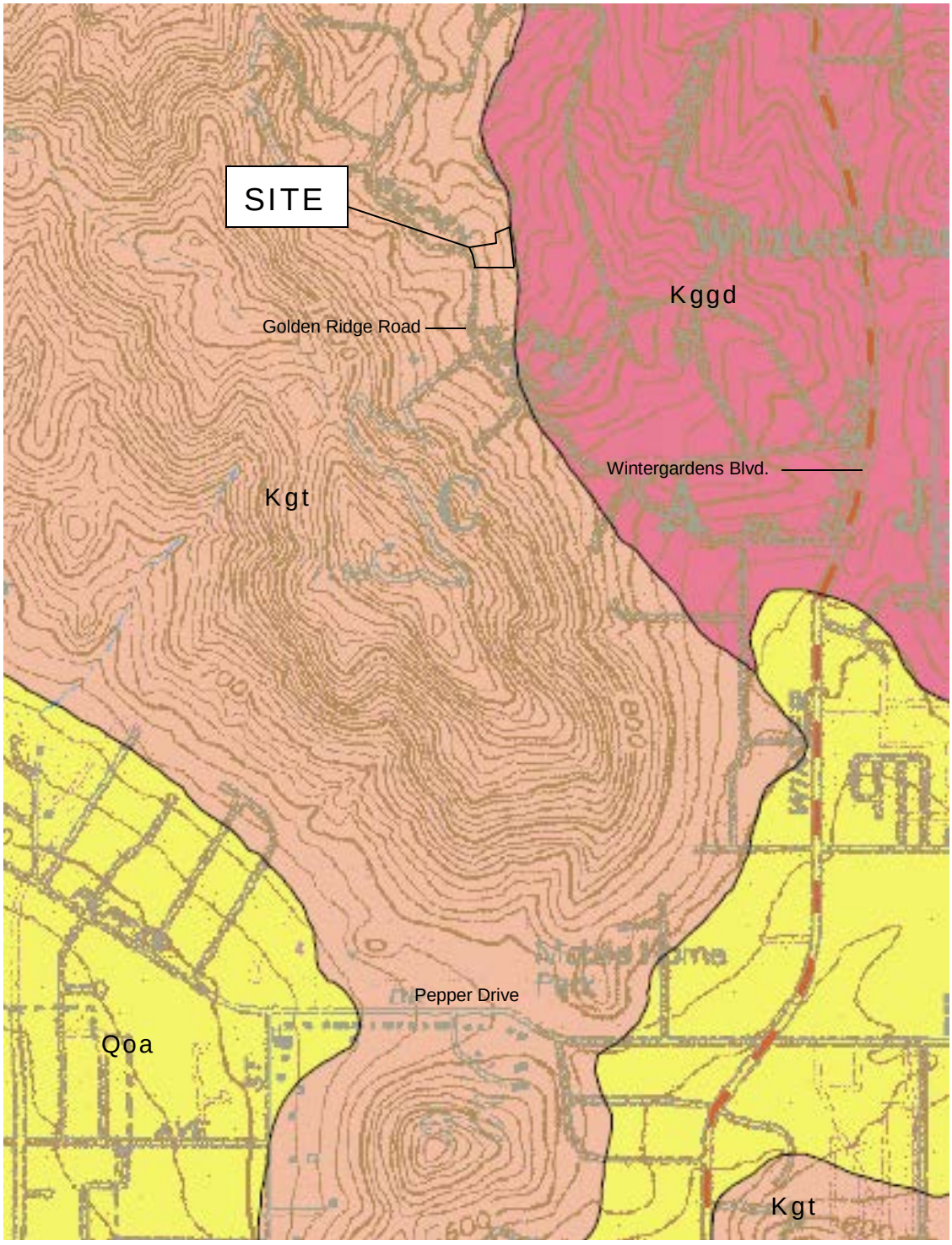
Lindvall, S.C., and Rockwell, T.K., 1995, Holocene activity of the Rose Canyon fault zone in San Diego, California, Jour. Geophysical Research, vol. 100, no. B12, Pages 24,121-24-132.

Tan, S.S., 1995, Landslide hazards in the southern part of the San Diego Metropolitan area, San Diego

County, California, pp. 1-6.

Tan, S.S., 2002, Geology of the El Cajon 7.5 min. Quadrangle, San Diego County California, California Geologic Survey, a digital database.

Aerial Photographs, U. S. Dept. Agriculture, 1953, AXN 9M, 69 & 70.



SITE LOCATION AND GEOLOGIC MAP,
GOLDEN RIDGE ROAD RESIDENTIAL PARCELS

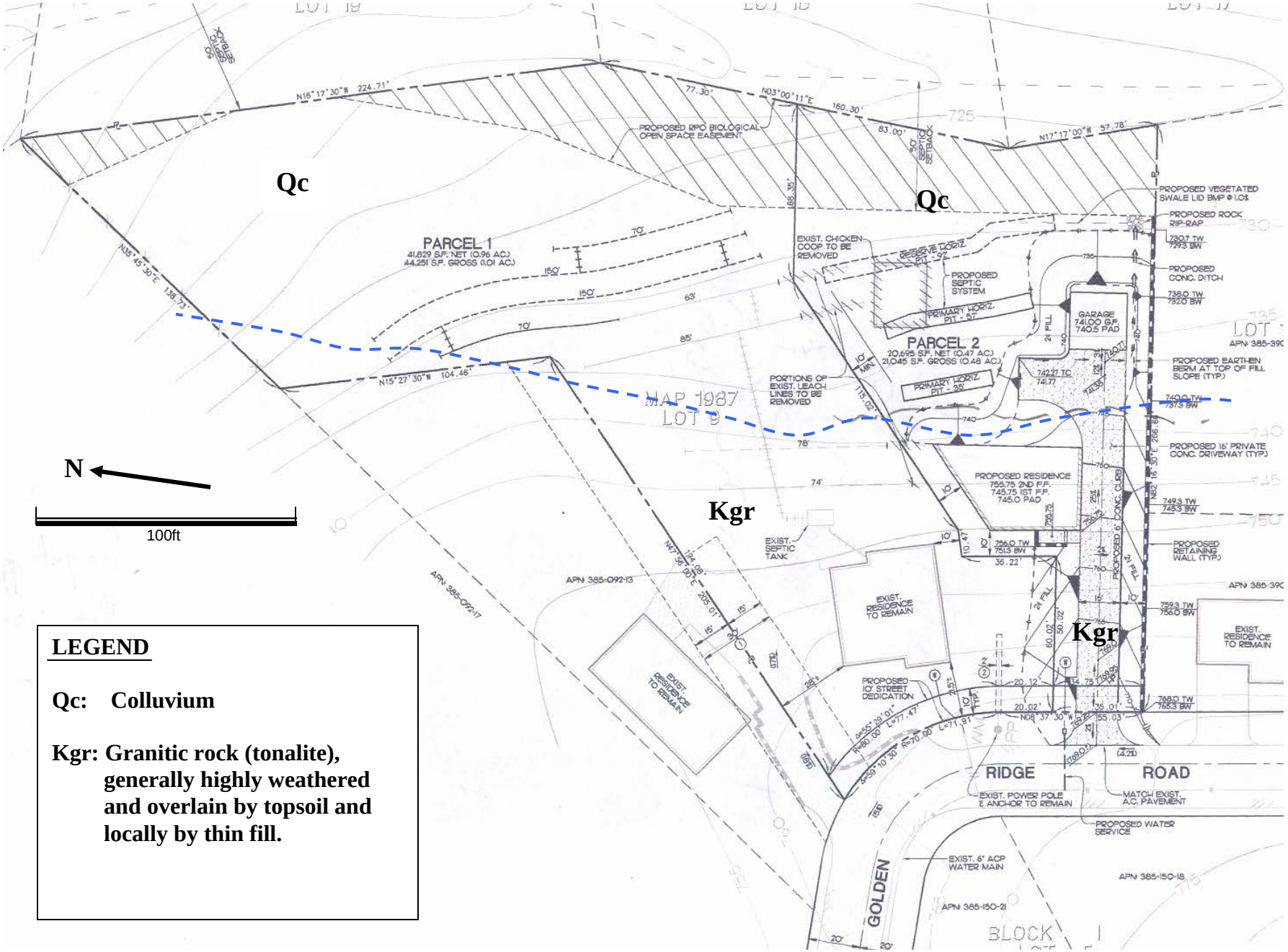
(from, Geology of the El Cajon 7.5min. Quadrangle,Tan, 2002,)
Qoa: older alluvium; Kgt: Tonalite; Kggd: Granodiorite

N

2000ft

MICHAEL W. HART, ENGINEERING GEOLOGIST
P.O. BOX 261227 • SAN DIEGO • CALIFORNIA • 92196 • (858)-578-4672

Figure 1



LEGEND

Qc: Colluvium

Kgr: Granitic rock (tonalite), generally highly weathered and overlain by topsoil and locally by thin fill.

MICHAEL W. HART, ENGINEERING GEOLOGIST
P.O. BOX 261227 • SAN DIEGO • CALIFORNIA • 92196 • (858)-578-4672

Figure 2

GOLDEN RIDGE ROAD RESIDENTIAL PARCELS LAKESIDE AREA, SAN DIEGO COUNTY, CALIFORNIA

Figure 3